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Product Information

Anti-Water Channel Aquaporin 4
produced in rabbit, affinity isolated antibody

Catalog Number **A5971**

Product Description

Anti-Water Channel Aquaporin 4 (AQP4, WCH4, Mercurial-Insensitive Water Channel 4) is produced in rabbit using a highly purified glutathione S-transferase (GST) fusion protein corresponding to residues 249-323 of rat AQP4 as immunogen. The serum is depleted of anti-GST antibodies by affinity chromatography on immobilized GST. The anti-AQP4 antibodies are affinity isolated on immobilized AQP4-GST.

Anti-Water Channel Aquaporin 4 recognizes aquaporin 4 from rat brain by immunoblotting. It can also be used in immunohistochemistry.

The aquaporins are small, very hydrophobic, intrinsic membrane proteins, the selectivity of which can be so high that even protons (H_3O+) cannot pass, although some channels also transport glycerol and sometimes larger molecules in addition to water.[1,2] The importance of the aquaporin water channels was underscored by awarding the 2003 Nobel Prize in Chemistry to Peter Agre “for the discovery of water channels”. The wide range of species expressing this family of proteins attest to its involvement in a diverse range of biological processes throughout the plant and animal kingdoms. All aquaporins bear common structural features, containing intracellular N- and C- termini and six transmembrane segments separated by five connecting loops.[2] Aquaporin-mediated water flow *in vivo* is directed by osmotic or hydraulic gradients and most mammalian aquaporins are inhibited by mercurials.[1,2]

AQP4 is an osmoreceptor that regulates body water balance and mediates water flow within the central nervous system. It is abundant in brain astrocytes and weakly detectable in eye, kidney, intestine and lung.

Reagent

Supplied as lyophilized powder from phosphate buffered saline, pH 7.4, containing 1% BSA and 0.05% sodium azide.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

Reconstitute the lyophilized vial with 0.05 ml or 0.2 ml deionized water, depending on package size purchased. Further dilutions should be made using a carrier protein such as BSA (1%).

Storage/Stability

Lyophilized powder can be stored intact at room temperature for several weeks. For extended storage, it should be stored at –20 °C or below. The reconstituted solution can be stored at 4 °C for up to 2 weeks. For longer storage, freeze in working aliquots. Repeated freezing and thawing, or storage in “frost-free” freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Centrifuge all antibody preparations before use (10000 x g 5 min). Working dilution samples should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: suitable

Immunohistochemistry: suitable

Immunocytochemistry: suitable

Indirect flow cytometry: suitable

Note: In order to obtain best results in different techniques and preparations we recommend determining optimal working concentration by titration test.

References

1. Verkman, A.S., and Mitra, A.K., Structure and function of aquaporin water channels, *Am. J. Physiol. Renal Physiol*. **278,** F13–F28 (2000).
2. Agre, P., et al., Aquaporin water channels – from atomic structure to clinical medicine, *J. Physiol*., **542.1**, 3–16 (2002).

3. Takata, K., et al., Aquaporins: water channel proteins of the cell membrane, *Prog. Histochem. Cytochem.*, **39**, 1-83 (2004).